7: Riad E-4, 5 (no date) 1960
MR1, Fellahin MR 3

000

BULLETIN
DE LA
SOCIÉTÉ DE GÉOGRAPHIE
D'ÉGYPTE

[Title page]

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

NATIVE PLOUGH IN EGYPT

BY

MOHAMED RIAD

Since millenia the cultivable soils of Egypt is confined to the Delta and the Valley of the Nile. This soil was deposited by the Nile through immemorial times and as a result it is composed, generally speaking, of nearly homogeneous fine particles which attain a mean depth of about 10 meters. The fact that such thickness and homogeneity of the cultivated soils rendering the minimum of soil variations has contributed much to the form and technique of the prevailing plough in Egypt. In fact the Egyptian plough is a simple one which is used to break the soil and not like other contemporary ploughs in Europe and elsewhere, does not invert the soil. This may be due to the aforementioned reason, i. e., the homogeneity of the soil, as much as other physical factors foremost among them are the yearly deposition of new soils through the agency of the flood on the one hand, and the penetration of air through the soil particles during the inter-planting period on the other hand. These factors and others did not necessitate deep ploughing or soil inversion, and as long as these factors remained in control of the type of cultivation in Egypt—which it did all over the history of agriculture in Egypt, due to the system of Basin Irrigation,—the evolution of the Egyptian plough was and is very slow in what concerns the major lines of form and technique. Yet there exist in Egypt at the present time two substantially different types of ploughs which function in similar physical conditions but exist in different regions. Building a co-existence among these two plough types, mixed offshoots arose to balance the picture and to ease the sharpness of plough boundary in the relatively small cultivable area of Egypt. Now we can differentiate at least seven plough types each with a limited geographic area.

407* 241 134 241 407* [184] [184]

[p241]

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

GEOGRAPHICAL DISTRIBUTION OF PLOUGH TYPES

* 407 184 The seven mentioned plough types which prevail in Egypt, reproduced in plates 1 to 4, are as follows :

Type I : the split handle, straight beamed type. This type prevails in both Western and Central Delta with the exception of the south-eastern area of Central Delta.

Type II : the single handle, curved beam plough. This type, one of the two basic ploughs in Egypt, prevails in the Eastern Delta roughly south of 31 degree of North Latitudes. It also exists in the south-eastern parts of the Central Delta.

Type III : the single handle, straight beamed plough. This type, being a mixture of both previous types, prevails spatially in the same region type II occupies.

Type IV : the right-angled double handles, straight beamed plough. This type prevails in the northern Provinces of Upper Egypt and reaches southwards as far as the boundary of Minya and Assiut Provinces. Nearly the same type prevails in the North-eastern Delta, roughly in a pocket to the north of Latitude 31, bordered by Lake Manzala to the East and north-East, and by the Damietta branch of the Nile's Delta to the West and north-West.

Type V : the obtuse-angled double handles, straight beamed plough. This type is the second of the two basic plough forms in Egypt, and prevails in southern Upper Egypt.

Type VI : the single handle, straight and short beamed plough. This [24] type is the usual garden type, and has many varieties, some wheeled while others are not wheeled but possess a fork-like extension of the beam, etc... This is extensively used in the Delta, and rarely found in Upper Egypt.

Type VII : the single handle, straight beamed, and wheeled plough. [24] This type is usually used in light soils, especially nearer to the edge of the desert in Eastern Delta.

7: Riad E-4, 5 (no date) 1960
MR.3 Fellahin MR13

DESCRIPTION OF THE PLOUGH

Though the aforementioned plough types differ among themselves yet there are some basic characteristics which combine them all. This being explained by the fact that they all labour in nearly the same physical conditions, hence the basic requirements must be similar. In the following lines we will try to describe these basic similarities, leaving aside for the moment their points of differentiations.

1. The Base. This is the 'foot' of the plough and is composed of a wooden body with a rear butt end and a tapering fore end. Its total length attains some 110 cms. a breast breadth of about 20 cms. and a thickness of about 15 cms. at the butt end. The thickness decreases towards the sharp end of the base owing to the fact that the upper surface is chiselled downwards from the butt end to the sharp point. The base supports the share, the handles, and the beam, and all these are fixed in different manners which will be described below with the exception of the share which is universally fixed to the fore end by a nail in all types.

2. The Share. This being an iron blade which takes the form of a spear head and a neck. It also varies in size according to the kind of plough and soil. The standard share, usually called «Lisan 'Aṣfura» meaning the tongue of a sparrow – has the following dimensions: total length 45 cms, length of neck 15 cms, breadth of neck 11 cms, wings at broadest 15 cms. The share is fixed on the upper surface of the tappering end of the base by means of a screw or a strong nail, and the share point must protrude some five centimeters ahead of the base point. A garden plough has a smaller share in what concerns the total length: this being only about 30 cms, while that of the plough intended to work on light soils or sandy areas has the same dimensions as the standard share except the breadth of the neck reaches 14 cms, and the breadth of the wings attains some 20 cms. Consequently the garden share is lighter than the standard share while that of the sandy areas is the heaviest of all.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

*407 3. Handles and Grip.—The handles are all over Egypt made of wood and attain the height of between 100 and 110 cms. As already mentioned the handle or handles are fixed to the base in different methods which will be explained later. The grip is also a wooden peg either protruding longitudinally in the case of one handle, or split handle, or a cross beam fixed to the two handles in the double handled types. The handles and the grip serve in the Egyptian ploughs to control the manouvering of the plough and the depth of the ploughing and are handled either by one hand or both hands according to the manner in which the grip is fixed.

4. The Beam.—It is either a straight or curved wooden pole which is attached to the base in different ways, and serves to connect the whole plough with the yoke by inserting a cross peg in a socket holed at the fore end of the beam. The beam attains a length which varies between 300 cms. and 350 cms. and usually has a square cross-section of 10 by 10 cms.

5. The Pin.—This is an iron bar which attains the length of about 50 cms. and a breadth of about 4 cms. This type of pin prevails all over ploughes in Egypt except in type V where we find the pin made of wood. Moreover the iron pin has a set of holes in which a peg is inserted over the beam to prevent it from springing upwards during ploughing, and at the same time controls the angle of the plough.

492 6. The Yoke. This is a wooden pole of about 270 cms. in length, which is put on necks of the animals drawing the plough. To fulfil its purpose the yoke has five pegs: one in the middle to which the rope connecting it to the beam is attached, and two pegs at each end of the yoke to which the two ends of the rope which encircles the neck of the [184] animal are tied. Such a yoke is universal all over Egypt except in type VI [241] where the plough is drawn by one animal, thus requiring a small curved yoke to which the single animal is harnessed.

*407 Such are the basic parts of the Egyptian plough and the previous description will be found useful in both understanding the structure of the plough at large, and illuminating in the following comparison.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

COMPARATIVE STUDY OF PLOUGH PARTS

407*
[184]

1. The Base. – The above mentioned description of the base is well preserved in all types of ploughes in Egypt, but they differ in what concerns the way in which other parts of the plough are mounted on it. In all the types we find that the base is hollowed about its centre to enable to insert the pin but this hole is different in types IV and V because here we find that the pin –though of wood in type V and of iron in type IV – has a wooden supporter attached to it. In type III there is also a kind of supporter which does not function in the same way as in types IV and V, but it has its place next to the pin and thus a special cavity is necessitated near the hollow of the pin. Furthermore the base is bored at about 10 cms. from its butt end to insert the single handle of ploughs belonging to types II, III, VI, and VII. It is also found that the base of type II has another hollow between the hollow of the handle and that of the pin; this is used as a socket to insert the end of the curved beam inside the base. In types I and IV the sides of the base near the butt end are a little bit chiselled to enable to fix the lower ends of the split handle (type I) or the right angled handles (type IV) to the base, but the cavity in both sides is never deep and the lower ends of the handles remain protruding. Again in type V the sides of the base are chiselled deep enough to eliminate the lower ends of the curved handles from sticking out. As the arms of this curved handles are comparatively long, the sides of the base are chiselled all the way through more than a third of the whole length of the base. Moreover some 10 cms. from the rear end of this base the sides are again re-chiselled to the end to enable fixing the beam to the base. Thus we may conclude that the horizontal projection of the base will take a more or less regular form of a broad rear end tappering slowly forwards in all types except in type V where we will find it broadest near the middle and while tappering slowly forewards it also narrows rearwards in two definite steps. This special form of the base of plough type V is a necessary technical accomplishment due to the special form of the wide angled curve of the handles on the one hand and the method by which the beam is fixed to the base on the other hand.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

*407 a. The Handles.—There are four types of handles; the split handle in type I, the single handle in types II, III, VI, and VII, the double straight handles of type IV, and the double curved handles of type V. The method of fastening the handles to the base differ in each case. The [414] handles of type I are attached to the base by means of a strong nail to each side. The same method is also applied to type IV. Of the single handle we have already spoken: it is inserted in a socket near the rear end of the base. Concerning type V the arms of the handle are fixed to the sides of the base by means of two iron bands which encircle both arms and the body of the base. Nails are not used in this case, and to [414] make a solid and compact unit of both handles and base in this type wooden pegs are inserted between the two iron bands and the upper surface of the base to tighten the attachment of both components.

There are also some differences as to the angle at which the handles are put to the base and consequently to the share. In the single handle of types II, III, VI, and VII, and in the case of the double handled type IV the angle is nearly a right one. Split handles of type I has an angle of about 100 to 110 degrees, while the angle reaches 120 degrees in type V. It goes without saying that the retreating handles of both types I and V gives the ploughman more ability to manouver the plough from behind and increases his weight or force on the handles and on the plough to regulate the depth of ploughing. The single handled plough may appear at first glance to be technically deficient in this respect; but the structure of such a plough especially that belonging to type II allow for this deficiency by means of a fairly heavy beam which —being curved— is centrally situated on the base, thus giving the plough a more balanced situation which is lacking to a certain extent in types III, VI and VII. In these types there is still some balance as to the pressure of the plough owing to the fact that the beam, though straight, rests on the base at a distance more centrally situated than that of types I and V where we find the end of the beam resting on the rear end of the base. In type IV the handles are but little retreating while the beam rests on the of the base.

3. The Grip.- The form of the grip in all these types fall in two categories, the transversal grip of the double handled ploughs belonging

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

to types IV and V, and the longtudinal grip of both the single handled plough types II, III, VI, and VII, and of the split handled type No. I. From the point of utility a transversal grip should be handled by both hands and thus precondition that the ploughman should go behind the plough. This is indeed the case in type V, but because the handles of type IV are not retreating rearwards it became awkward for the ploughman to handle the plough from behind, and it is usual in this case that he walkes, beside the plough griping it by his right hand. This way of handling the grip is also usual in the cases of the longtudinal grip of all other types. The longtudinal grip differ in form and length in the single handle types than that of the split handle plough. In the last named the grip is a small wooden peg inserted in the upper part of the handle from behind. This peg is so small that it deserves its arabic appellation «'Asfura» which means a sparrow or a little bird. In fact the ploughman in this type does not use this small grip and instead control the plough by the upper end of the handle. The grip in the case of single handled ploughs is usually a larger wooden peg which is inserted in a socket in the handles and protrudes from both sides of the handle. Thus the grip here serves to handle the whole plough.

4. The Share.—All the Egyptian ploughs use the varieties of shares already described above except the share of plough type No. V. Here the share has no wings or neck but take a regular form with a butt end in the rear and a sharp point on the foreward end.

5. The Beam.—We have already detected two kinds of beams in the Egyptian plough, namely the more commonly dispersed straight beam on the one hand and the curved beam which only appears in plough type II on the other hand.

The straight beam differ from one type plough to the other in many respects. In type VI it is to be noted that the beam is considerably short, and a cross pole is fixed to its extremity to enable either a double rope, double longtudinal wooden extension to be fixed at either ends of this cross bar, or a fork-like extension (see plate IV). This is a necessary technical adjustment for the one animal which is assigned to draw such

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

*407 a plough. The beam of that type is fixed to the base by means of an iron band which encircles the base from underneath while its arms are fixed by nails to the beam. The iron band in this type and likewise in type III and VII is placed comparatively nearer to the middle of the base than to its rear. This being the case because in all these types the beam ends with a cavity in which the single handle of the plough is adjusted. thus the beam does not reach the rear end of the base, and simultaneously this special form of the beam end serves as a support or gives more strength to the way the handle is mounted on the base. In types I and V we find the iron band which fixes the beam to the base is placed on the rear of the base because the beam end penetrate between the split handles of type I and the double handles of type V. The beam of type IV also penetrates between the double handles of the plough. but it is fixed [413] to the base by means of a strong nail or a screw. The curved beam of type II is fixed directly to the base by inserting its end in the special socket bored in the base. To strengthen such an attachment a small peg is drawn in the socket behind the inserted part of the beam.

In type II it is very rare to find a tree branch or a piece of wood which can be carved to make the desired curve and still accomplishes the desired length of the beam. It became obligatory that an extension should be attached to the beam. and that is the cause that plough types of this kind are some times called « Mehrat be wasl» meaning a plough with an extension.

The beam extensions which we observe in types IV and V are also obligatory from the technical point of view. As the pin of these two types (iron pin in type IV and a wooden pin in type V) does not regulate the angle of the plough, but serve only to keep the beam from jumping upwards, it became necessary that another device must be made to regulate the plough angle. This is accomplished by the beam extension which is commenly an upward curved piece of wood fixed at its lower [414] end to the end of the beam by a wooden peg. The higher end of the extension is bored at different levels and by inserting a peg to which he rope connecting the plough to the yoke is fixed, the ploughman can change the angle of ploughing by puting the peg in a higher or a

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

lower hole. One should again stress the fact that though the pin of type IV is made of iron and may have holes like all iron pins of other types, it does not work as a regulator of the plough angle, but the angle is regulated by the beam extension. We can also conclude that a beam extension is technically necessitated by the principles of structure of plough types II, IV, and V, while it does not figure out in other types unless it is added for the sole purpose of completing the length of a much used beam. 407*

6. The Pin. -The pin is used to serve two purposes: as an additional fastener of the beam to the base on the one hand, and to prevent the beam from springing upwards during the ploughing by inserting a peg through the pin over the beam, on the other hand. These two purposes are, [184] universal in all types of the Egyptian plough. But while such functions are preserved in types II, IV and V, another important function is added to the pin in all other types; this being that of regulating the angle of the plough, just refered to above. To fulfil the two purposes of strengthening the beam-base connection and keeping the beam from springing upwards, the pin could be made of wood as it is the case in type V. But to regulate the angle the pin should be made of a different material other than wood. The pin as described above is comparatively short and not so thick as the beam or the yoke; it actually is essentially a sort of a peg. Now if this wooden pin is holed three or four times in the row which we observe in the usual iron pin used in Egypt, the result would be a certain inherent weakness in the wooden pin; because it will not resist the strength of pulling. This simply is the cause why the function of regulating the angle is assigned to the yoke extension in type V, where the wooden pin is used. In type II, the curve of the beam fixes once and for all the angle of the plough, and the pin of this type could easily be made of wood. But using an iron pin in type II is definitely an evidence of cultural adaptation owing to the fact that the area in which this type prevails uses an [184] iron pin. In the case of type IV the iron pin is useless as to the function of regulating the angle of the plough, and its existance is also an evidence of cultural influences.

To relieve the animals from a part of the burden of carrying the whole weight of the yoke and beam, and to keep the beam from falling downwards,

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

*407 a wooden supporter is put next to the pin. This is naturally not the case in type II where the curve of the beam keeps it standing upwards. In type I this supporter is also lacking.

GEOGRAPHICAL REGIONS AND INTERRELATIONS FROM PHILOLOGICAL EVIDENCES

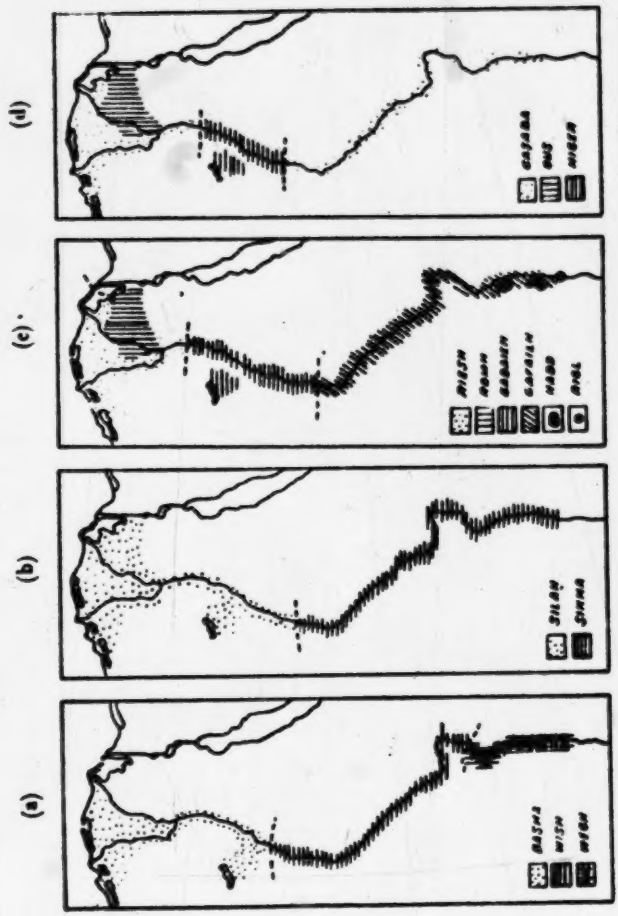
197 184 *407 It is obvious from both the list of appellations of different parts of the plough and maps on figures 1 and 2, that certain differences in naming the parts of the plough do exist in Egypt. These differences, apart from their importance to the study of dialects in Egypt, reveal some definite geographic regions the boundaries of which are supported by well known cultural elements and historical facts. If these regions which are detected from the study of plough are not totaly new, there is no doubt that their existence is reinforced by new evidences.

Region One: The Delta. The homogeneity of terminology in the Delta is striking. It is only on maps (c) and (d) of fig. 1 that we find a certain specialization in naming the handle and beam of the plough in Eastern Delta. This area is the domain where plough types II, III, VI and VII prevail. The philological differentiation in this respect is deeply rooted in the technicalities of these plough types: they are all single handled, hence these handles deserve the name of « Romh » spear in contradistinction to « Riesh » feathers which is applied to the split handle of type I. Because the beam of type II is curved, hence the term Ous = a bow or a curve. Though plough types III, VI and VII possess a straight beam, they are nevertheless called Ous. This is a fact which undeniably point that type II is of older age in the area, and furthermore gives an evidence that all these types are but off shoots of this type adjusted to the cultural milieu of Egypt as a whole (where the straight beam prevail): the beam changed but the old name persisted.

It is also observed that some appellations in the Delta do not belong to any arabic origin, but are derivations from the Greek or the Latin languages. Thus Winkler think that « Balanga » (= the pin of the plough)

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

197
184
407*
102



Base. Share. Handle. Beam.

Fig. 1. Appellations of Plough Parts.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

197
184
*407
102

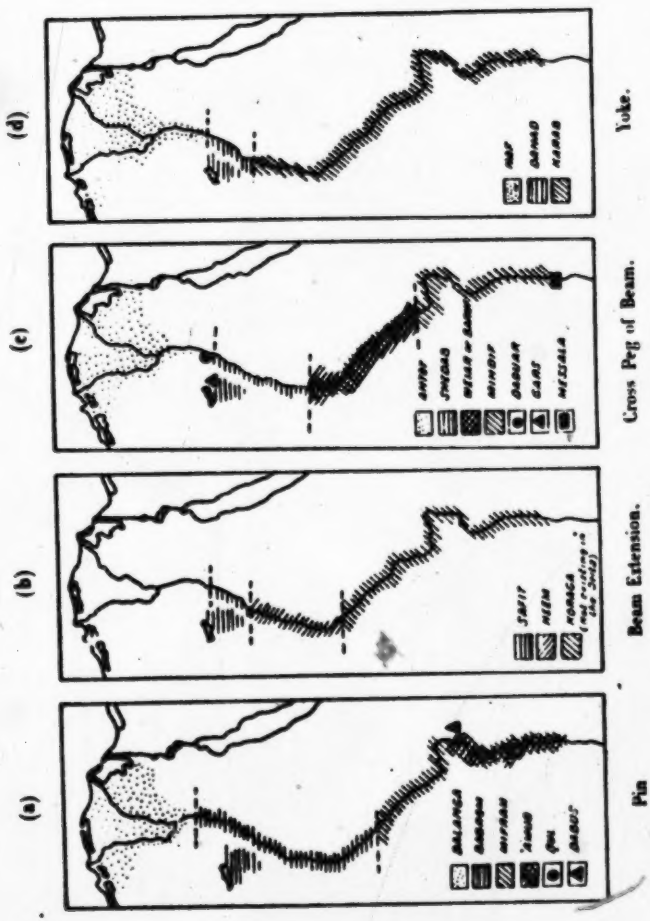


Fig. 8. Appellations of Plough Parts.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

point to the Italian word Bilancia[1]. In this way could we seek the origin of the term «Bazha» (= the base of the plough) to such origins? In addition to these foreign terms there are arabic names, e. g., «Silah» = blade or share, «Riesh» = feathers, «Romh» = spear, while the words «Antot» and «Naf» may belong to the Coptic or ultimately to the Egyptian languages. In this way we may see that the Delta, though homogeneous, reveal three segmented linguistic and cultural layers: the Egyptian, the Greco-Roman, and the Arabic. This conclusion, supported by historical records, has its reasoning in the geographical situation of the Delta as the northern limits of the Egyptian Nile Valley, as the area facing the Mediterranean, and lastly as the area exposed to Arabia.

If the Delta is established as one region, we can further divide it in two sub-regions. Leaning on the arguments stated above, the Eastern Delta would stand alone as a sub-region, while the other parts of the Delta would constitute the second sub-region. There is no part of the Delta other than its East which received so many human and cultural elements from the Middle-East and Arabia and it happens that that part, in what concerns the plough, is remarkably different in terminology and technique. This area, where type II is at home, did not only account for the several offshoots of plough forms (types III, VI ,VII) but also affected the manner in which the ploughman controls his plough. All over the Delta and Middle Egypt the ploughman marches beside his plough where a split handle or a double handle is used. This, as Winkler rightly pointed out[2] is due to the influence of plough Type II, where the ploughman always walk to the left of the plough. In the same source, Winkler claims that this habit of going beside the plough in itself is an evidence of the prior spread of plough II all over the Delta and Middle Egypt[3]. But we must not build a whole theory upon one factor. It is true, as we shall see below, that a curved beamed plough was discovered in Fayum dating to the Roman Period, but this plough was not single

[1] Winkler, H. A., 1936, p. 164.
[2] Winkler, 1936, pp. 148, 150.
[3] Winkler, 1936, pp. 150, 163.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

* 407 184 handled. What is more is that the double handles of this Roman plough reared backwards in as much an angle as that observed in contemporary plough type V. What seems probable here is that plough type IV is directed by the ploughman in the same way as plough II only because the handles are not retreating backwards—hence it would be difficult posture for the ploughman to lean forward behind the ploughand all the time keeping a good distance between himself and the plough, lest his feet should run in the rear of the base. The proper question would be why the handles of this type took a right angle instead of the obtuse angle of type V? One seems to infer this new adjustment of the handles to influences from type II. This, however, does not need the pre-existance of type II in Middle Egypt, because influences can take many channels other than a prior existance.

197 184 * 407 *Region Two :* Upper Egypt. This region extends from Aswan in the south to approximately Minya in the North. This region represent the counterpart of the first one, and here we find a deep homogeneity represented by identity and similarity of techniques. Fine dialectal differences are present, e.g.. « Wish » and « Wegh » or « Wijh » — face (for the base of the plough), and « Gabaien » or « Gafaien » (for the handles). Identity is attained in naming the essential parts of the handle : « Wish » for the base, « Sikka » for the share, « Gabaien » for the handles, « Gasaba » for the beam, « Koraga » for the beam extension, and « Karab » for the yoke.

Within this region one can find two sub-regions, namely to the North and South of the Nile bend at Qena. The southern sub-region is full of manifestations apparently very old. This may be due to the fact that this area is the southern most of cultivable Egypt, thus representing conservatism at most. We may add to this the existance of influences [197] from Nubia which adjoins the region from the South. We know that the inhabitants of the Island of Baharif, to the north of Aswan, are all Nubians, hence the existance of the special terms which figure on maps (c) of fig. 1 and map (c) of fig. 2. On map (c) fig. 1 we see two localities in Idfu District, west of the Nile, where Hadd [114] is applied to the handles instead of Gafaien. These two localities –

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

Keih and Benban were given this terminology by Winkler[1]. As we have made investigations in the area between these localities (several villages were studied: Abu Ennasr, Abu Ibny, and Rikabi, all of which are put under the cumulative name of Ramadi South in our list) we are led to the conclusion that Winkler must have misunderstood his interpreter in one way or the other. Nevertheless we have specialized a different colouring for both localities on the map pending further research. The most characterising elements in the southern sub-region are the common usage of «Wegh» and «Wijh», for the base, «'Amud» instead of «Miftah» for the pin, and «Mindef» instead of «Weiar» or «Barufa» for the cross peg of the beam extension. This area is furthermore characterised by the overall usage of plough type V. The Northern sub-region is not so valid in its uniting characters, and is more exposed to influences from the North.

Region Three: Middle Egypt. This region includes Giza, Beni Suef, Fayum and Minya provinces. Region of weakness may safely be applied to this area: a glance at the maps on figs. 1 and 2 would suffice to convey this quality to the reader. It sometimes represent a satellite of the Delta cultural region, and in other times it is attached to Upper Egypt. Such a state of affairs can be readily seen from maps (a), (b), and (c) of fig. 1. But this situation does not include all the region, and one can easily divide it to three sub-regions: Giza Province in general present an increasing influence from the Delta, Minya Province present the other extremity: the Upper Egyptian region knocks always at the door, and lastly the intermediary area of Fayum and Beni Suef which in reality represent in more than one way symptoms of independence symbolised in the peculiarities of its terminology. Here we have «Higr» for beam, «Bagrom» for pin, «Saffit» for the beam extension, «Shaddab» for the cross peg of the beam extension, and «Danad» for the yoke.

Although type IV prevails in this region at large, the different appellations suggest to a philologist the deeper study of such word origins.

[1] Winkler, 1936, p. 153.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

197
184
*407
177

either in the Fayum Coptic or with a mixture of Greek origins, for we know that Fayum was once one of the important centers of the Greek Ptolomies.

HISTORICAL EVOLUTION OF THE EGYPTIAN PLOUGH

*407
174

It is a well established fact that the first recorded form of plough is found on the monuments of Ancient Egypt. Many drawings from the Old and the New Kingdoms of Ancient Egypt can give us a picture relevant to question of the evolution of the plough. There is also a coloured wooden figure of the plough which belong to the 11th or the 12th dynasty kept in the British Museum, and many original ploughs were found near Fayum which belong to the Greek and Roman periods of the history of Egypt, and which are kept in the different Museums of the world, e. g. Cairo and Berlin. All these examples of the plough covering a very long time span can be used as a sound basis for the study of the history of the present Egyptian plough, if we add to it the description of the plough in the 18th century A. D., recorded by Norden[1], and by the scientists of the French Expedition to Egypt[2].

In an unpublished report in the Agricultural Museum of Cairo, a short note is written on the subject of the ancient Egyptian plough. Extracts from the note runs as follows :

> « The ancient Egyptian traditions alledge that the Egyptians are indebted to Osiris, God of Plants in the Egyptian Panthaeon, for the knowledge of the plough. Evidences from early drawings proove that the plough in its original form was worked only by man, and it was only drawn by oxen in the drawings of Meidum, i.e., begining from the third Dynasty. In that form the plough had only one wooden share for ploughing the soft soils ; and had a double wooden share covered by a sheet of bronze to plough harder soils.... The plough was called in the Egyptian language SIKA. »

---

(1) See references under Norden.
(2) See references under Girard.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

407*
174

In this note it is interesting to see that before the third Dynasty (the beginning of this Dynasty is attributed by Erman to be about 2900 B.-C.) [1] the Egyptians used hoes to break the soil, or at least that is what one can understand from the phrase « the plough in its original form was worked only by mans. Drawings of hoes used to break the soil came to us from the remains of the first Dynasty [2]. The plough in its early form, and throughout the Old Kingdom, was composed of a wooden share to which two short handles were fixed from the rear end of the share, while a long beam was fixed to it from the center. The beam ended with a yoke which was at that time attached to the horns of the drawing oxen. In the Middle Kingdom there was no development to this plough, but

> ... in the New Kingdom we see that the handles became longer, and hand grips were added to the handles. We also see that the yoke was replaced by another type which is not attached to the horns, but which rests on neck of the animal ... this method was taken over from the method of saddling the horse... » [3].

Of special interest in the note of the Agricultural Museum of Cairo cited above, is the appellation of the plough in Ancient Egyptian. Sikka as the name of the plough was conserved till now in Arabic Egyptian, and is used to denote the share of the plough in Upper Egypt [4]. Sikka as the name of the plough in Ancient Egypt may have been supplemented by or was used along with another name : [197]

> « ... The name of a plough was HEBI ; ploughed land appears to have been ART, a word still traced in the Arabic HART... » [5].

Wilkinson states that the Ancient Egyptians as observed by Diodorus, used hoes extensevely, but on occasions used light ploughs which traced slight furrows, while other peasants followed the plough with hoes to

---

[1] Erman, p. 96.
[2] Erman, p. 496, footnote 4.
[3] Erman, pp. 496-497. Also see plate 8 of this article.
[4] See list of appellations given in this article.
[5] Wilkinson, Vol. II, p. 393.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

*407
174

break the tenacious soil. He continues to describe the plough in Ancient Egypt at large as follows :

> « The ancient plough was entirely of wood and of a very simple form like that still used in Egypt. It consisted of a share, two handles ; and the pole or the beam ; which last was inserted into the lower end of the stilt, or the base of the handles, and was strengthened by a rope connecting it with the heel. It had no coulter, nor were wheels applied to any Egyptian plough : but it is probable that the point was shod with a metal sock, either of bronze or iron. It was drawn by two oxen ; and the ploughman guided and drove them with a long goad, without the assistance of reins which were used by the modern Egyptians. He was sometimes accompanied by another man, who drove the animals, while he managed the two handles of the plough ; and sometimes the whip was substituted for the more usual goad. The mode of yoking the beasts was exceedingly simple. Across the extremity of the pole a wooden yoke or cross-bar, about fifty-five inches or five feet in length was fastened by a strap ... At either end of the yoke was a flat or slightly concave projection, of a semi circular form, which rested on a pad placed upon the withers of the animal, and through a hole on either side it passed a long thong for suspending the shoulder pieces, which form the collar. These were two wooden bars, forked at about half either length, paded so as to protect the shoulders from the friction ... »[1].

It is in the Greek and Roman Periods in Egypt that we see another development over the plough of the New Kingdom. Indeed we find in the two types whose sketches are reproduced on plate 6, the prototypes of some of the present ploughs in Egypt. The plough which was found in Darb Gerza (Plate 6 b) the origin of which is kept in the museum of Berlin, present us with a wooden share and base much similar to the base of the above described plough type V ; the sides of the base are chiselled in two steps, one to adjust the handles, and the other to fix the beam. The only difference which may be observed in the method of fixing the handles is that it may have been fixed by nails and not with bands like type V. It is also to be noted that the beam was holed at its rear end to enable to

---

[1] Wilkinson, Vol. II, p. 390-393.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

insert the rear of the base through it, and a nail may have been used in the projecting part of the rear of the base to prevent the beam from sliding out. This much complicated method was substituted by the simpler method of attaching the beam to the base by means of iron bands used now in type V. The beam here is the usual straight beam used in much of plough varieties in Egypt, but in this prototype there is no pin. Instead and in place of the pin socket in the contemporary ploughs, there are two parallel holes in the base, and a rope end is passed in one of these holes then reappears from underneath in the other hole, then passed over to be wind on the beam. In this way it is certain that the angle of the plough never changed unless the rope was changed. On the fore part of the base there are no traces of nailing a metal share to it, but this does not exclude the possibility that the metal share was adjusted to the base not by nails but by bending the edges of the metal round the sides of the base. This may be proved by the various metal shares especially of iron —which belong to the Greco-Roman period, and whose origin are kept in Berlin.

The plough which was discovered in a house at Harit in Fayum (plate 6 a), and which belong to the Roman period, is kept in the Egyptian Museum in Cairo. This type gives up a combination of both contemporary types II and V, as it is clearly exemplified by the presence of a curved beam, and projecting double handles. The very characteristics of the curved beam are represented here : the beam extension which is permanently fixed here with palm fibers, and the pin which supports the beam is made of wood and attached to the beam, not through inserting in a socket, but by binding it to the beam by a rope, probably of palm fibers too. The beam, neverthless, is additionally fixed by a method which is not found in type II, but by a method retained in the southern tip of Upper Egypt, and in an altered method in Tripoli.[1] This being a rope connecting it to the handles as it is clearly seen in the sketch. The handles are projecting rearwards, and fixed to the base by nails, though another fastner, a rope, tightens them to the base. The grip is lacking in this plough, and the cross bar which figures in the sketch between the two handles may have strengthened the handles, rather than functioned as a grip.

[1] [See category 116, End Plate VIII --Analyst]

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

174
*407

Baumann, agree to the fact mentioned above, namely that the development of the plough was sharpest with the begining of the Greek and Roman Periods, and describes another form the Egyptian plough from the late period, whose origin is kept in Berlin Museum in the following lines :

> « Wichtig aber ist, dass auch der altägyptische Pflug zu diesem Typus gehört, wenn er auch durch seine Doppelsterzigkeit äusserlich etwas anders erscheint. ... Durch alle Epochen bis zur ptolemäischen Zeit blieb der Pflug mit wenig Änderungen sehr ähnlich... Das in Berlin befindliche Fundstück aus der Gräberstadt im westlichen Theben zeigt eine starke Knickung der Sterzen. Hier mündet auch der Grindel ein. ... Dieser altägyptische Pflug hat im modernen Ägypten seine direkte Fortsetzung gefunden in den hier auftretenden zweisterzigen Pflügen, die allerdings schon wesentlich komplizierter erscheinen. Hier zeichnet sich eine richtige, von der Sterze getrennte Sohle ab, ohne dass aber in den meisten Fällen der Charakter des alten Spaten-Pflugs verloren geht » [1].

It is clear from this quotation that Baumann holds the opinion that though the Egyptian plough has undergone several changes from early dynastic period till the present time, still it holds to its basic spade-like character. This opinion is not only Baumann's, but we also find similar opinion in Winkler [2] and both of them based their conclusions on the extensive studies of Leser [3]. And it is a fact that though the different types of the Egyptian plough may be so complicated in their structure, yet they function on the same principles of a hoe. But we should be aware of the fact that pushing this material similarity far to the realm of culture would lead to much misunderstanding. Using animals in this plough is in itself an evidence of the cultural differences between hoe and plough cultivation, not to mention other differences in techniques of ploughing, production, of crops, and the many other social implications.

Not much description of ploughs in Egypt occur after the Christian Era, and it appear that slow variations took place during this long

---

[1] Baumann, p. 313.
[2] See references under Winkler.
[3] See references under Leser.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

174
407*

period; variations which took place due to cultural influences encroushing upon Egypt. but while accepting such influences, we are inclined to think that from the Greco-Roman Period onwards, the forerunners of the Egyptian ploughs were fixed; and throughout two millenia, mixture, selection and adaptation played their role in founding the existing plough types. We cannot ascertain any date for the different existing types, but we may say that they do existed in Egypt in a form very near to its present form since at least three centuries. This may find a support in the drawing of the plough by Norden [1] who flourished in the 18th century, and visited Egypt around the middle of that century. It can be also attested by the drawings and description of the Egyptian plough by the scientists of the French Expedition which took place late in the 18th century.

Norden drew a plough in the village Gamase in Upper Egypt, and from the sketch of Norden one can see that plough belong to type IV of the northern part of Upper Egypt. The base may be larger than in reality, and the beam is fixed to the base by a rope instead of the usual nail. The beam extension is present, but not curved upwards like the present extension in both types of Upper Egypt. The whole drawing seems to be more or less stylish in some points, though it gives a good idea about the form of the plough at that time.

The plough drawn by the French in «Description de l'Egypte» [2] is said to belong to lower Egypt (the Delta) and around Cairo. In his comment on the drawing, Girard states :

> «Nous dirons seulement que celle (charrue) est particulièrement en usage dans la basse Egypte est aux environs du Kaire : celle de la partie méridionale du Sa'yd est beaucoup plus légère et beaucoup plus grossièrement travaillée.
>
> Pour se former une idée de cette dernière, il suffit de concevoir deux pièces de bois d'un mètre de haut, coudées naturellement à leur extrémité inférieure sous un angle de cent degrés environ. Ces deux pièces, ... sont retenues fixement, à un décimètre de distance l'une de l'autre, par deux chevilles ; l'une a quatre décimètres

[1] Norden, pp. 54-55, and plate LVI.
[2] See references under Girard.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

174
*407

et l'autre à un mètre au-dessus du même coude. Cette dernière cheville les traverse toutes deux, et présente extérieurement deux poignées par lesquelles on peut la saisir.[1]

The assumption that such a plough may be found around Cairo may be right. Furthermore it is implied that this type prevails in middle Egypt, because Girard specialised another plough form for the southern part of Upper Egypt. This plough belong, in our classification, to type IV. If we remember the geographical distribution of plough types, type IV also exist in a pocket between Damietta branch and lake Manzala, but other parts of the Delta belong to different ploughs. Therefore the generalisation of Girard as to the presence of this type all over the Delta is erroneous. Furthermore, making the double handles of the southern Upper Egyptian plough, is not as simple as the description of Girard may convey to the reader. It is rare to find two pieces of tree branches which have the same angle, and as we have seen one of these ploughs in process of making in the desert edge of Luxor district and in the desert edge of Ramadi South —areas culturally poor by the mere facts of there geographical locations and isolations— we are inclined to think that working out the desired angles of such handles needs a good deel of traditional labour and workmanship. Yet complicated techniques are evidences of conservatism rather than progress, hence we can assign older age to ploughs belonging to type V, than for example those of type IV.

This discussion leads us to the crucial question : How did the present types evolved into their different forms?

We have already stated that plough types of the Greek and the Roman periods which we have already described, formed the prototypes of the present ploughs in Egypt. They combined the curved beam, and the double handles in one form or the other. In our classification of plough types we have refered to two basic types, namely the curved beamed type, and the double handled type. Each of these types has his own cultural and geographical region : the first type reigns in the Eastern Delta, while the second type occupies the southern parts of Upper Egypt.

---

[1] Girard, Vol. XVII, pp. 22-25.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

Now the plough of Dynastic Egypt was more or less double handled, and if the discoveries in Upper Egypt or Fayum reveal, even through the Greek and the Roman periods, the constance of double handles, there is then no doubt that such a characteristic in the Egyptian plough is obviously very old. Again if we consider another part of the plough, namely the beam, we find that the straight beam figures out in all ancient findings, until curved beam appears suddenly in the Roman period, side by side with the straight beam. This sudden appearance is only confined to Fayum, no evidence known refer to the appearance of the curved beam in Upper Egypt, but it is highly probable that curved beam appeared also in different parts of the Delta. We must notice that the curved beam of Fayum appeared in connection with a double handled plough —a fact which either indicate that that type of beam originated with the double handled principle, or that it originated in association with the single handled plough. In view of the constant appearance of the curved beam with the single handle, not only in contemporaneous Egypt, but also in Southern Palastine, Tripoli [1], Tunisia [2], and in South Arabia [3], we may conclude that the combination of double handles and curved beam of Roman Fayum represent an adjustment of the curved beam incrusion southwards from the Delta. All this discussion means that the roots of the present type V plough are definitly older than prototype of plough type II.

Leser in his studies of the plough has settled down the problem of the curved beam plough. In his steps followed both Winkler and Baumann. Winkler states :

> « Der Krümelpflug weist nun deutlich nach Griechenland und Italien hinüber, dort ist dieser Pflug seit sehr alter Zeit zu Hause. Wenn wir zur Bezeichnung der Griessäule das romanisch Balanga (Latienisch oder italienisch Bilancia) finden, dürfen wir vermuten, dass dieses Wort besonders am Mittelmeerpflug, dem Krumelpflug, gehaftet hat » [4].

[1] See plate 8, drawings of the plough of Palastine and Tripoli based upon information furnished to me by some palastinian and libyan students in the Faculty of Arts, Ain Shams University, Cairo.

[2] See plate 8 e, after Baumann.

[3] See plate 8 d, drawn upon photograph 37 in Helfritz (see references under Helfritz).

[4] Winkler, p. 163.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

174
177
*407

We have no doubt that the single handled curved beamed plough belong to the Mediterranean cultural region, and because Egypt, though lying on the coasts of the Mediterranean, represent in its greater part a somewhat isolated area (especially Upper Egypt), it has evolved its plough type according to its needs. Furthermore Egypt in nearly all its Dynastic history was an independent state, and perhaps that helped towards keeping traditional impliments. When the Greek family of the Ptolomies consolidated its rule in Alexandria, Egypt was open now to the influences of the Greek-Mediterranean culture. This still attained its zenith during the Roman occupation of Egypt. From the Roman period onwards Egypt was part and parcel of successive macrocosmos, namely the Roman Empire, the Arabic Empire, and the Turkish Empire. We are sure that so much influences played its part in the development of the Egyptian plough, but these influences did not overcome the two handled plough, which resisted these encroushments and succeeded to remain nearly intact in southern Upper Egypt, and co-existed with the mediterranean single handled plough in the Delta, intact in its isolated pocket in the Prairies of Lake Manzala, and in the northern parts of Upper Egypt. It is only in most parts of the Delta which was incessantly under the influence of the Mediterranean, that a compromise between the Egyptian double handle-straight beamed plough and the Mediterranean single curved-straight beamed type, took place in the plough types I and III, i. e., the split handle-straight beamed type, and the single handle-straight beamed type. The characteristics of plough type I gives us every reason to conclude that it leans heavily on the principle of the Egyptian double handled plough, the only compromise is that the handles are united in the upper part, but the projection of the handles was kept to a certain degree, together with the straight beam. Type III inclines more to the Mediterranean plough in keeping the single handle, but the compromise took place in the change of the curved beam to a straight beam.

One can now safely conclude that the evolution of the Egyptian plough took the following periods and events :

1. Throughout Dynastic Egypt the double handled-straight beamed plough persisted all over Egypt. This plough deserve the appellation

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

of the Egyptian plough due to its archaic age. In its relatively purest form it survive in plough type V.

2. Begining of the Greco-Roman period the Mediterranean plough extended over many parts of the Delta, and the northern part of Upper Egypt including Fayum. But we are certain that it did not exist in its pure form, at least in Fayum, and was adjusted to the double handle principle. In its pure form it persist now in Eastern Delta. This fact may be explained by the everlasting stream of Arab settlers in this part of the Delta — being geographically exposed to Arabia. Plate 8 show us that the Arabs of Palastine, and those of Hadramut use the Mediterranean plough. The same plough is used in the Oasis of Siwa, the coast West of Alexandria, and in Libya and North-west Africa. It is only Western and Central Delta which break through this continuous distribution of the Mediterranean plough. One can conclude that this plough type did not reign over the Delta as a whole, even in the Greco-Roman period. We must not imagine that as soon as it came to Egypt, it expelled the older double handled plough. We should also bear in mind that neither the Greek nor the Romans ploughed the land themselves, but formed a governing aristocracy in Egypt. It is highly probable that this plough type gained sure footing after the Arabic settlement in the Eastern Delta. This is due to the fact that the Arabs settled down and cultivated the land themselves somewhere around the 10th century. Bearing this in mind however, does not negate the pre-Arab existance of this plough in different parts of the Delta.

3. Plough type IV, which retains most of the characteristics of the type V, was affected but slightly by the Mediterranean plough. This may be prooved by the fact that the handles does not retreat or project rearwards, but are fixed at nearly right angles to the base. This is a special characteristic of the single handle of the Mediterranean plough.

4. Plough type I has been already mentioned.

5. Plough type III, has been also mentioned, but we may add that this type probably represent the newest adaptation of plough types in Egypt.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

102
184
*407
174

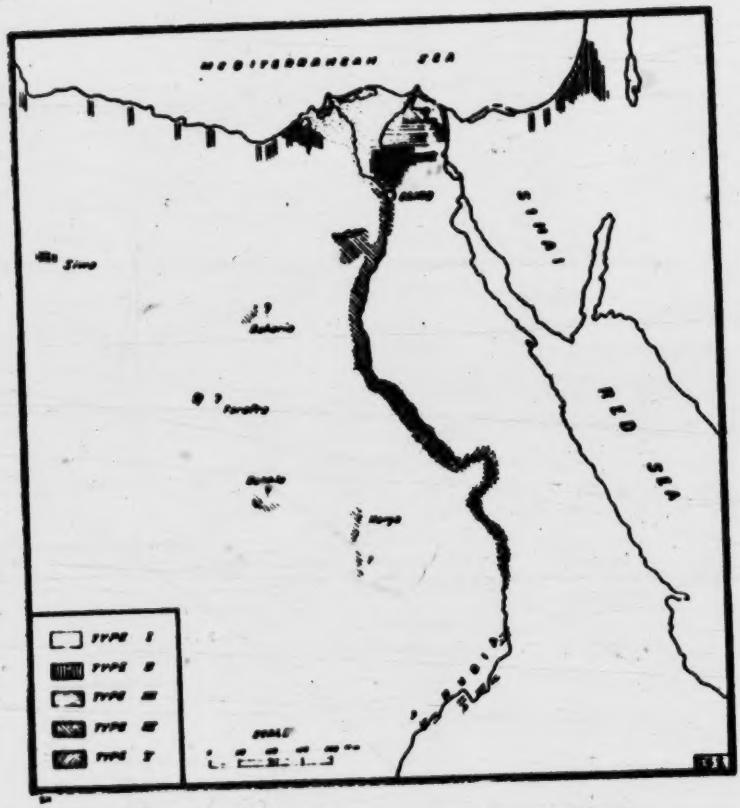


Fig. 3. Regional Distribution of Plough Types in Egypt.

RETROSPECT

171
*407 The basic plough types just described are not exclusive to Egypt. We have already seen that plough type II has a wide diffusion in North Africa and the Middle East. It may also exist in Tibit, if the drawings reproduced by Ratzel (1) are true. But already in Tibet we see another

(1) Ratzel, Vol. III, p. 384.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

plough type, which though straight beamed, has no other similarieties with the straight beamed Type III of Egypt, but had connections to ploughs of East and South-East Asia. 171 407*

In any case the plough in Africa is confined to the area north of the Sahara, in addition to its isolated existence in the Highlands of Ethiopia. The southern limits of the plough was observed by Ratzel [1], who drew the southern limits from the south of Morroco, includes most of the Sahara, excluding only Mauritania, and ending by Abyssinia. Baumann disagree with Ratzel and states that the plough is to be found only in three regions :

> « ... haben wir aber in Afrika ein fast zusammenhängendes Gebiet das von Marokko über Algerien und Tunis nach Ägypten und Abessinien führt, wo alte mittelländische und westasiatische pflugkultur beheimatet ist. Die in diesent Raum einschneidenden Lücken (Libyen, Gebiete östlich des mittleren Nil) werden durch das Dazwischentreten nomadisieren der Hirtenvölker erklärt » [2].

Thus Baumann see that the three areas where the plough is to be found in Africa are not connected due to the arrival of the nomads in Libya and Northern Sudan. This may be true but we find a native Mediterranean plough in Tripoli, and in the Oasis of Siwa. This may mean that there is some sort of connection of plough between Egypt in the East and Tunis in the West. Baumann may have been impressed by the reports of different travellers across the Sahara, who did not observe any plough in the Oasis of the Algerian and the Libyan Oasis. But Herzog rightly quotes Rohlfs who stated the existence of the plough in the Egyptian Oasis of Dahla and Harga :

> « ... dass man sich in einer Oase des pfluges bediente, war mir ganz neu. Weder hatte ich die Anwendung dieses Gerätes in Draa, Tafilet, oder Tuat gefunden, noch in der grossen und ausgedehnten Oas Fessan » [3].

---

[1] Ratzel, Vol. I, map facing p. 21.
[2] Baumann, p. 310.
[3] Rohlfs, p. 198, in Herzog p. 201.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

171 *407 Herzog again states[1] that the plough is to be found in middle Nubia, and says that an Egyptian governer of Nubia about 1870 tried to persuade the people to use the plough. Though he failed at the begining, the plough, since the introduction of water pumping stations, is now in use in Nubia.

Very important to us is that both the Oasis of Dahla and Harga use a plough which at least in Harga belong to plough type IV[2], and that Nubia uses also an Egyptian plough. These facts make it clear that the Egyptian Oasis and Nubia are part and parcel of the Egyptian Cultural Region as a whole. The existence of plough type I in Nubia cannot be explained by geographical facts —for as such we would have found plough type V —but can only be explained by the human hazard. If the governor of Nubia happened to be accustomed to Upper Egyptian ploughs the picture would be now different! Trade routes which connect the Oasis [487] with Assyut and Minya Provinces from times immemorial are responsible for the existence of plough type IV in these Oasis.

PROSPECTS

241 One cannot deal with the plough without a few lines about its future. Egypt, through its long history depended upon agriculture for at least seven thousand years. Until 150 years ago the Egyptian agriculture was used to the method of basin irrigation, and there was generally only one crop. The rest of the year the basins were first under the water of the flood —with its renewal of the fertility—then left to dry, thus enabling the penetration of air and heat in the soil —which add to its strength. It is now the theory that the excellent crop of Basin land in souther Upper Egypt is due to both factors, but more to the resting period of soil —which is called in Egypt season of «Sharaiy or Sharaqy». This may also be applied to explain the fabulous richness of Egypt through its long history.

---

[1] Herzog, pp. 205-207. On page 205 there is a photograph of a plough in Middle Nubia, which Herzog on page 206 describes as a one handle plough [114] type. This is not the case, and it is apparent from the photograph that plough belong to the Egyptian type I, i.e., the split handled plough.

[2] Winkler, Plate 35, and text page 148.

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

241

Since the application of the system of perennial irrigation 150 years ago, no actual «Sharaiy» is applied to the land, and this is one of the causes of smaller production. We do not mean to hold back the history, because perennial irrigation gives Egypt the possibility of fitting in the economic picture of the world through the cultivation of cash crops together with industrial crops (e.g., cotton and sugar-cane). Egypt cannot afford to retreat to basin irrigation, but on the contrary, all basin land will be converted in the near future to perennial irrigation, after the completion of the High Dam project. Problems of the increasing population of Egypt, added to the land hunger, needs all efforts to make the best out of the situation by increasing the crop area and its output.

Now the plough types which we have described are all of the kind which break the soil and does not invert it. This kind of ploughing only makes superficial furrows, thus does not penetrate deep. Such a method was sufficient in basin irrigation, because the soil took its due rest and airing in the Sharaiy period.

If these ploughs were substituted by a plough type which plough deeper and, which invert the soil, we may, in this way, compensate, to an extent, the lack of Sharaiy, by exposing more soil to the air, and simultaneously by letting the air penetrate in the deeper furrows which would result from such ploughing. This though may appear a bit theoritical, it deserve an experiment. So far as we know, some big land owners use mechanical ploughs. All we need is to study the output of such ploughed lands and compare it with other land ploughed by the native wooden plough. In such a study one must take in consideration much different elements. For example one should not compare the mean output of a feddan in a big estate with that of very small holding. Small holdings though wide spread in Egypt —does not represent the usual agricultural pattern, but it is more like horticulture. In a small holding the members of the family actually work every bit of land manually. We should then compare the output of big holdings using wage labour, and using on the one hand wooden ploughs and on the other hand mechanical ploughs.

If mechanical ploughs are found useful in increasing the output, there is another problem which should be faced; small holdings cannot afford such costy ploughs. But the roots of overcoming such a problem may be

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

241 [243] found in what we have observed in a small village in Central Delta. To thresh corn the Egyptians use a special cart or wagon with sharp-edged iron wheels which is drawn either by one or two animals. This implement is used since a very long time in Egypt. Some five years ago the peasants of this village —and probably in many places in the Egypt— can hire a tractor of a rich neighbour, and let the tractor pull three to five threshing waggons, one behind the other. In this way a work of a week done by the slow animals and one cart, is done in a day or two by the quick tractor and the triple number of threshing waggons. In a similar way mechanical ploughs can be used. The spread of mechanical ploughs would end, among others, in the following results :

1. Quick ploughing would result in relieving many working hands for other periodic wage-labour, increasing thus the private income.

2. Relieving the animals from a part of their hard work, thus enabling Egypt to develop animal husbandry and dairy production.

REFERENCES

113 Bauman, H. «Zur Morphologie der afrikanischen Ackergeräte», in *Wiener Beiträge zur Kulturgeschichte und Linguistik*. Jahrgang 6, Wien (1944).
Bekhit, S. M. Native Agricultural implments (In Arabic). Cairo (1959).
Breasted, J. H. Geschichte Ägyptens. German translation by Hermann Ranke. Zürich (1954).
Erman, A. and Ranke, H. Ägypten. Arabic translation by A. Abu-Bakr. Cairo (1955).
Girard, M. P. S. «L'Agriculture, l'Industrie et le Commerce» in Vol. 17 of the *Description de l'Egypte*. 2 ed. Paris (1823).
Helfritz, H. Vergessenes südarabien. Leipzig (1936).
Herzog, R. «Kritsche Bemerkungen zur nord. afrikanischen Pflueggrenze» in *Deutsche Akademie der Wissenschaften zu Berlin*, Band 13. Berlin (1957).
Lauer, P. Entstehung und Verbreitung des Pfluges. Münster (1931).
Norden, F. L. Travels in Egypt and Nubia. English translation by Peter Templeman. London (1757).
Ratzel, F. Völkerkunde. Leipzig, Vol. I, 1885, Vol. II, 1886, and Vol. III, 1888.
Rohlfs, G. Drei Monate in der libyschen Wüste. Kassel (1875).
Wilkinson, J. G. The Manners and Customs of the Ancient Egyptians. London (1878).
Wiedler, H. A. Ägyptische Volkskunde. Stuttgart (1936).

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

102
114

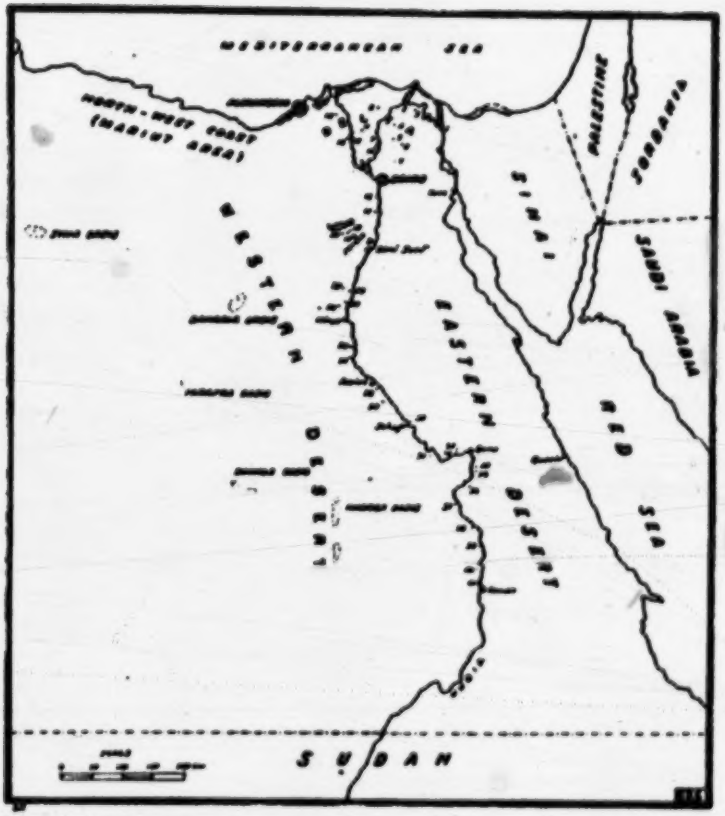


Fig. 4. Names of Localities where Studies on the plough were carried out.

[103]

1. Qantara West.	12. Mishlia.	23. Beni Mazar.	34. Kiman.
2. Genermia.	13. Kamshush.	24. Gebesna.	35. Harragia.
3. Bagrat.	14. Sanhur.	25. Shoshia.	36. El-'Ammari.
4. Nub.	15. Netma.	26. Mallawi.	37. Nouasir.
5. Ibrahimia.	16. Tammua.	27. Garf Serhan.	38. Kelh.
6. 'Ezbet Maher.	17. 'Ayat.	28. Nazlet 'Abdella.	39. Ramadi-South.
7. Bilbies.	18. Fidimin.	29. Aulad Mohamed.	40. Benhan.
8. Biesla.	19. Sinero.	30. El-'Ezbi.	41. Baharif Is.
9. Zefta.	20. Zeid.	31. Aulad 'Amran.	
10. Sa'ad Pacha.	21. Man'aria.	32. Abu Mana'a.	
11. Shony.	22. Ezbab'iy.	33. Esnaberiat.	

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

Appellations Regionally Used to Different Parts of the Native Plough in Egypt.

197
*407
103

Place of Observation	Base	Share	Handle	Iron bands	Handle grip	Beam
Eastern Delta :						
Qantara West (2)	Bazha	Silah	Romh		Maqbad	Ous
Genemia (2) (1)	"	"	Riesh	"	Yadd	Asaba
Busrat (3) (1)	"	"	"	"		Asaba
Nub (3)	"	"	Romh	—	Gabda	Gos
Ibrahimia (1)				Gafiez	"	"
'Ezbet-Maher (1)	"	"	"	"	"	"
Bilbies (2)				Afiez	Abda	Ous
Bilbies (3)				"	"	"
Ibrahimia (1) (—)					Gabda	Gos
'Ezbet-Maher (1) ( )	"	"	"	—	"	"
Bilbies (2) ( )					Abda	Ous
Bilbies (3) ( )						
Bilbies (2) (+)	"	"	"	"	"	"
Bilbies (2) (+)	"	"	"	—	"	"
Central Delta :						
Bicata (2)	"	"	Riesh	"	Yadd	Asaba
Bicata (2) (+) I	"	"	"	—	"	"
Zefta (2)	Basha	"	Romh	—	Gabda	Asaba
Sa'ad Pasha (1) ( )	"	"	"	—	"	Ous
Shony (2)	"	"	Riesh	—	Ieyd	Asaba
Mishla (1)	"	"	Raiesh	—	'Oukşa	"
Kamshush (3)	"	"	"	—	Rimh	"
Kamshush (3) (+)	"	Lisan el 'asfur	"	—	"	Ous(— —)
Western Delta :						
Sanhur (3)	"	Silah	Riesh	—	—	Gasabi
Netma (1)	"	"	"	—	'Oukşa	Asaba
Middle Egypt :						
Tamma (3) (+)	"	"	"	—	Abda	Asaba
'Ayat (2) (+)	"	"	Gabaien	"	"	Digr
Fidimin (3) (+)	"	"	"	"	—	"
Sinero (2) (+)	"	"	"	"	Masnad	"
Zeid (2) (+)	"	"	"	—	"	"
Man'aris (3) (+)	"	"	"	"	'Ubad	"
Edab'iy (1) (+)	Wish	"	"	"	Gabda	Gasaba
Beni Mazar (2) (+)	"	"	"	—	"	"
Golosna (3) (+)	"	Sikka	"	—	"	"
Shosha (1) (+)	"	Silah	"	—	"	"

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

197
407*
103

Place of observation	Base	Share	Handle	Iron bands	handle grip	Beam
Upper Egypt :						
Mallawi (3) (+)	Wish	Sikke	Gafaien	Tog	Gaṣba	Gaṣaba
Garf Serḥan (2) (+)	"	"	"		"	"
Nazlet 'Abdalla (3) (+)	"	"	Dafaien	Dibel	Yadd	"
Aulad Mohamed (3) (+)	"	"	Gafaien	Dog	Gabḍa	"
El-'Ezbi (3) (+)	"	"	"	Tog	Babba	"
Aulad 'Imran (3) (+)	"	"	"	"	Dabba	"
Abu Manna' (1) (+)	"	"	"	"	Gabḍa	"
Esnaberiat (1) (+)	"	"	"	"	"	"
Kiman (3) (+)	"	"	"	Dibel	"	"
Harragia (2) (+)	"	"	"	"	"	"
El-'Ammari (1) (+)	Wagh	"	"	"	"	"
Nauasir (3) (+)	Wish	"	"	"	Magbad	"
Kelh (3) (+)	Wigh	"	Hadd	"	"	"
Ramedi South (1) (+)	"	"	Gafaien	"	"	"
Benhan (3) (+)	Wagh	"	Hadd	"	"	"
Baḥarif (3) (+)	Sikke	"	Rigil	"	Yadd	
Palestine :						
Southern area (2) (=) (+)	Arḍiya	Hasecm	Romh		Hamama	koo'
Libya :						
Tripoli (2) (=) (+)	El-Layṭa	Sikka	Seluqina	—	Qarraṣa	Raqaba

(1) Ploughs observed by the author.
(2) Ploughs described by some students of the author (faculty of Arts, Ain-Shams Univ.).
(3) Ploughs described by H. A. Winkler pp. 153-158 (see references below).
(+) Double handle plough.
(=) Curved beam plough.
(+) One animal plough (usually garden plough).
(+) Wheeled plough (usually used in sandy areas).
(+) Wheeled plough (usually for vegetables).
(=) The first part of the beam, which is attached to the share is called Wasle, while the forked fore part of the beam is called Arish, and the whole is called Ous. see Winkler, H. A., p. 154.

[241]

Transcription :

| | | | | | |

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

197
*407

Place of observation	Fastner; base with beam	Pin	Pin supporter	Beam Extension	Fastner; beam with beam extension	cross peg of beam or beam extension
Eastern Delta :						
Qantara West (2)	Ṭo'	Balanga	—	—	—	Bantot
Genemia (2) (+)	»	»	—	—	—	Lantot
Busraṭ (3) (+)	Ṭog	»	—	—	—	Antot
Nub (3)	—	»	Shinhab	—	—	Bantot
Ibrahimia (1)	Gafiez	»	»	—	—	»
'Ezbet-Maher (1)	»	»	»	—	—	»
Bilbies (2)	Afiez	»	—	—	—	»
Bilbies (3)	Ṭog	»	Faṭs	—	—	»
Ibrahimia (1) (=)	—	»	—	Waṣla	Shamber	»
'Ezbet-Maher (1) (=)	—	»	—	»	»	»
Bilbies (2) (=)	—	»	—	»	»	»
Bilbies (3) (=)	—	»	—	»	—	»
Bilbies (2) (+)	—	»	—	—	—	—
Bilbies (2) (+)	—	»	—	—	—	Bantot
Central Delta :						
Bicala (2)	Ṭo'	»	—	—	—	Antot
Bicala (2) (±) I)	—	—	—	—	—	—
Zefta (2)	Ṭo'	Balanga	—	—	—	Antot
Sa'ad Pasha (1) (=)	—	»	—	Waṣla	Shamber	»
Shony (2)	Ṭo'	»	—	—	—	»
Mishla (1)	»	»	—	Waṣla	Shamber	»
Kamshush (3)	»	»	—	—	—	»
Kamshush (3) (±)	Balanga	»	—	—	—	—
Western Delta :						
Sanhur (3)	Ṭog	»	—	—	—	»
Netma (1)	Ṭo'	»	—	—	—	»
Middle Egypt :						
Ṭamma (3) (+)	Ṭo'	Magrum	—	Waṣla	Shuḍab	—
'Ayaṭ (2) (+)	Bagrom	Balanga	—	»	Shuḍab	Douar
Fidimin (3) (+)	Ṭo'	Bagrom	—	Ṣafiṭ	Gars	Gars
Sinero (2) (+)	Bagrom or Iyl	»	—	Ṣafiṭ	»	Shaḍḍab

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

197
407*

Place of observation	Fastner; base with beam	Pin	Pin supporter	Beam Extension	Fastner; beam with beam extension	Cross peg of beam or beam extension
Zeid (2) (+)	Iyl	Bagrom	Masanid	Waslet-Etta'ab	Ta'ab	Shaddab
Man'aris (3) (+)	•	•	Masned	Saffit	Shaddab	• or wiri
Eglab'iy (1) (+)	Musmar	•	•	Heem	Abu-Elgurun	Shaddab
Beni Mazar (2) (+)	Tog	Balanga	—	•	Elgureen	Shuddab
Golosna (3) (+)	Gil	Mesned	without a special name	•	Gerun	Shidab
Shosha (1) (+)	Musmar	Bagrom	Masned	•	Abu-Elgurun	Shaddab
Upper Egypt :						
Mallawi (3) (+)	Gil	•	•	•	•	'Asfur
Garf Serhan (2) (+)	•	•	•	•	•	
Nazlet 'Abdalla (3) (+)	Gurrab	Badrum	•	Garada	Baruf	Weri
Aulad Mohamed (3) (+)	•	Moftah	•	Garage	Rasla	Weiar
El-'Ezbi (3) (+)	•	•	•	Garagi	Rashi	Baraf
Aulad 'Imran (3) (+)	•	Miftah	•	Karagi	Gutta	Mindif
Abu Manna' (1) (+)	•	•	•	Kurage	Habur	•
Essabariat (1) (+)	•	•	•	•	•	•
Kiman (3) (+)	•	•	•	•	•	•
Harragia (2) (+)	'Ogb	Dubbus	•	•	•	•
El-'Ammari (1) (+)	•	'Amud	•	•	•	•
Nauasir (3) (+)	Gurrab	•	Habur	•	•	•
Kelh (3) (+)	•	Dul	Mesned	•	•	•
Ramadi South (1) (+)	•	'Amud	•	•	•	•
Benhan (3) (+)	•	•	•	—		•
Baharif (3) (+)	•	•	Gafir			Messala
Palestine :						
Southern area (2) ( )(±)	—	—	—			—
Libya :						
Tripoli (2) (—) (±)	—	—	—			—

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

197
*407

Place of observation	Rope connecting beam with yoke	Yoke	Outer peg of the yoke	Inner Peg of the yoke	Middle Peg of the yoke	Rope connecting yoke with animal
Eastern Delta :						
Qantara West (2)	Ged	Naf	Gunafa	Soba'	Musmar	Ḥunnag
Genemia (2) (+)	»	»	Ounafa	»	»	Deshida
Busraṭ (3) (+)	'ed	»	»	»	»	
Nub (3)	Ged	»	Deshida or gunafi	'Aṣfur	'Aṣfur	
Ibrahimia (1)	»	»	Gunafa	»	'Asfur Wastani	Dishida
'Ezbet-Maher (1)	»	»	»	»	»	»
Bilbies (2)	'ed	»	Ounafa	»	»	Ḥabbl
Bilbies (3)	Ged	»	Ginafa	»	'Aṣfur	
Ibrahimia (1) ( )	»	»	Gunafa	»	'Asfur Wastani	Deshida
'Ezbet-Maher (1) (=)	»	»	»	»	»	»
Bilbies (2) ( )	'ed	»	Ounafa	»	'Asfur	Ḥabbl
Bilbies (3) (=)	Ged	»	Gunafa	»	»	--
Bilbies (2) ( )	'ed	»	Ounafa	—	—	Habbl
Bilbies (2) ( )	»	»	»	»	'Asfur	»
Central Delta :						
Bicala (2)	Ged	»	»	»	»	Deshida
Bicala (2) (±)	Salab	»	»	—	—	»
Zefta (2)	Ged	»	»	'Aṣfur	'Aṣfur	»
Sa'ad Pasha (1) (=)	»	»	Ḥunnag	»	'Aṣfur Wastani	»
Shony (2)	'ed	»	Mahna'a	»	Bakara	»
Mishla (1)	Ged	»	Ḥunna'a	»	Ba'ff	Mahna'a
Kâmshush (3)	'ed	»	Ounafa	»	'Aṣfur	
Kamshush (3) (±)	--	»	»	—	—	—
Western Delta :						
Sanhur (3)	'ed	»	Gunafi	'Aṣfur	'Aṣfur	—
Netma (1)	»	»	Ḥunna'a	»	»	Mahna'a
Middle Egypt :						
Ṭamma (3) (+)	»	»	Ounafa	Ounaf	Musmar	—
'Ayaṭ (2) (+)	»	»	»	'Aṣfur	»	Mahna'a

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

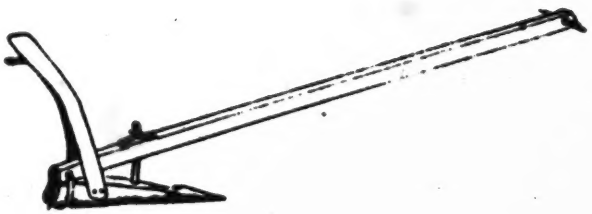
197
407 *

Place of observation	Rope connecting beam with yoke	Yoke	Outer Peg of the yoke	Inner Peg of the yoke	Middle Peg of the yoke	Rope connecting yoke with animal
Fidimin (3) (+)	'ed	Danad	Ounafa	Ounaf	Musmar	—
Sinero (2) (+).	•	•	•	•	el-Maqsam	Mahna'a
Zeid (2) (+).....	•	•	•	•	•	•
Man'aris (3) (+).....	Wire	•	•	•	no name	-
Edab'iy (1) (+)	•	Karab	Gunafa	Suba'	Suba'	Mahna'a
Beni Mazar (2) (+)	Ged	•	•	Habur	Habur	Gunafa
Golosna (3) (+)	•	•	•	Suba'	Suba'	—
Shosha (1) (+)	•	•	•	•	•	Gunafa
Upper Egypt :						
Mallawi (3) (+).	Wire	•	Gale	Musmar	Musmar	—
Garf Serhan (2) (+)	•	•	•	•	•	Mahna'a
Nazlet 'Abdalla (3) (+)...	•	•	•	—	•	Muhnaga
Aulad Mohamed (3) (+).	•	•	Gile	Gile	•	•
El-'Ezbi (3) (+)	•	•	•	'Asfur	•	•
Aulad 'Imran (3) (+) ...	•	•	Gille	Za'fur	Za'fur	•
Abu Manna' (1) (+)	•	•	•	•	•	•
Ebassariat (1) (+).....	•	•	•	Sa'fur	Ta'fur	•
Kinan (3) (+)	•	•	•	•	•	•
Harragia (2)(+)	•	•	•	Zahfur	Zahfur	•
El-'Ammari (1) (+)	•	•	•	Ta'fur	Ta'fur	•
Nauasir (3) (+).....	•	•	•	•	•	•
Kelh (3) (+).....	Ura	•	Rikkbe	Za'fur	Za'fur	•
Ramadi South (1) (+)...	Hora	•	•	—		•
Benban (3) (+).	•	•	•	—		•
Baharif (3) (+)	•	•	Musraga	—	—	•
Palestine :						
Southern area (2) (-)(+).	Salab	Nier	Shoha	Shoha	Musmar	Habbl
Libya :						
Tripoli (2) ( ) (1)	Habbl	—	—		—	Habbl

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

[END PLATE I]

407*
184



(a) — Type I. Split handle. — Straight beamed Plough.

(b) — Type II. Single handle. — Curved beamed Plough.

[End Plate II]

* 407
184

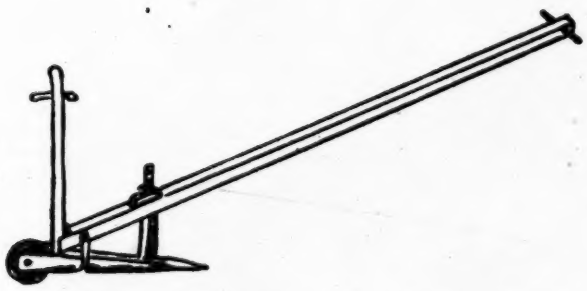
(a) — Type III. Single handle. — Straight beamed Plough.

(b) — Type IV. Right-angled double handle Plough.

[END PLATE III]

407*
184

(a) — Type V. Obtuse angled double handle Plough.

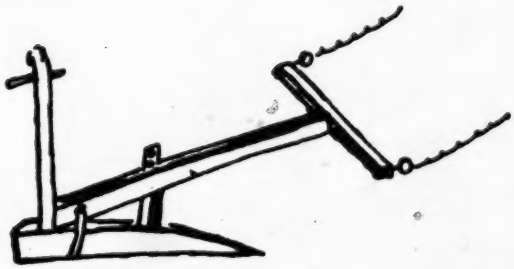


(b) — Type VII. Single handle. — Straight beamed and wheeled Plough (Bilbies).

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

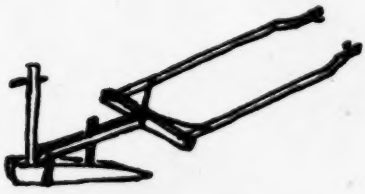
[END PLATE IV]

* 407
184



(a) Bilbies.

(b) Kamshush (after Winkler).



(c) After S. M. Behiery.

Type VI. Single handle. — Straight and short beamed Plough (Garden type).

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

[END PLATE V]

EVOLUTION OF THE EGYPTIAN PLOUGH
I. DYNASTIC PERIOD

407*
174

(a) Old Kingdom (after Erman fig. 402).

(b) — 11-12 dynasty 2100-1800 B. C. wood figure, British Museum (after Breasted, Plate 72).

(c) — New Kingdom (18th dynasty). (after Erman, fig. 403).

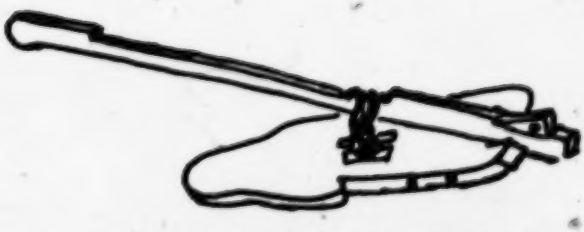
7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

[END PLATE VI]

* 407
174

EVOLUTION OF THE EGYPTIAN PLOUGH
II. GRECO-ROMAN PERIOD

(a) — Harit Plough [Fayum], double handle. — Curved beamed Roman Period (origin Egyptian Museum, Cairo).



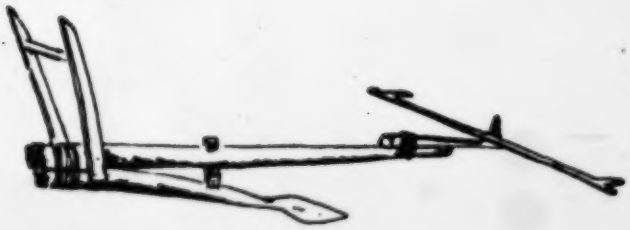
(b) — Darb Gerza Plough double handle. — Straight beamed Greco-Roman Period (origin Berlin Museum, drawn after Model in the Agriculture Museum, Cairo).

7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

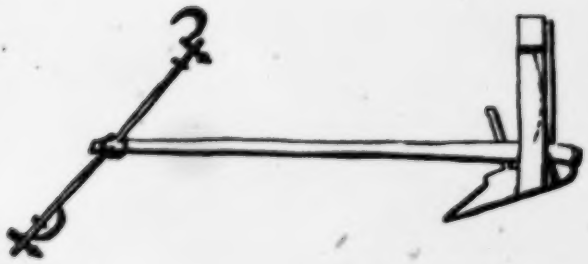
[End Plate VII]

409*
174

EVOLUTION OF THE EGYPTIAN PLOUGH
III. MODERN TIMES



(a) — The Egyptian Plough after Norden (mid 18th. Century) Upper Egypt
(See Norden, Pl. LVI, pp. 54-55).



(b) — The Egyptian Plough after Description de l'Egypte
[late 18th. Century] (Planche IX, Tome II, Etat Moderne).

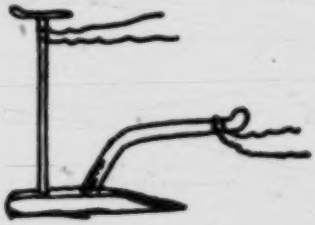
7: Riad E-4, 5 (no date) 1960
MR13 Fellahin MR13

[END PLATE VIII]

* 407
171

CURVED BEAMED PLOUGHS (MEDITERRANEAN REGION)

(a) – Southern Palestine.



(b) — Tripoli.

(c) — Tunisia (After Baumann, p. 311).

(d) — Valley Hadramut Southern Arabia (After Helfritz, Photo 37).

407

/For information on types of Egyptian plows and their evolution see category 116, pp. 241-268, 272-277 and 8 end plates./